

Climate, Water Scarcity and Management in Brazil and Chile

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Abstract

This collaborative study compares the use of seasonal climate forecasting in water management in Brazil and Chile, two countries where climate variability makes it difficult for policymakers, water managers, and water users to mitigate the effects of water scarcity. Both countries recently enacted national water reform programs which promote integrated, decentralized and environmentally sustainable water management, and designated water an economic good for whose use users should pay. In this scenario the use of seasonal climate information can play a critical role in water management by allowing for pro-active planning and decisionmaking. However, the use of technical and scientific (particularly seasonal climate forecasting) information is mediated simultaneously by institutional factors (design and dynamics) and the prevailing problem definition. Understanding the institutional filters through which climate information is diffused prompts us to undertake extensive institutional analysis of the water sector in both countries. We focus on the following research questions. What aspects of the structure, composition, procedural norms, or other factors in institutional design and practice, make institutions more able to incorporate innovation (science-based information) in decision-making processes? How does the use of science-based knowledge affect decision-making within these institutions? Does it make it more democratic or more insulated? Does the degree to which water management councils function democratically affect the likelihood that they will procure and use technoscientific information? How is such information presented, communicated, and how is it made operational? Does private ownership of water rights make actors more likely to seek out such information? To answer these questions this project will compare the use of seasonal climate forecasts across six watersheds, three in Brazil (including one in Ceará) and three in Chile (including Region IV). In Brazil, we will work closely with researchers from the Watermark Project, a multi-year study of factors affecting institutional innovation and consolidation of participatory watershed-level management institutions. That project has a commitment to share findings continuously with the groups and organizations being studied, including watershed-based committees, government organizations, and the public. In Chile, we build upon research already in progress in a NOAA funded project comparing the use of seasonal climate forecasting in agriculture and drought planning in the Limarí River basin in Region IV, one of the driest in the country as well as in another watershed close to the capital city of Santiago. For this purpose we will combine quantitative (through extensive surveying of water decisionmakers) and qualitative methods (in-depth interviews with key informants and documentary research) to understand what factors facilitate or inhibit the use of seasonal climate forecasting, and how it affects decisionmaking at the watershed level.